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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/775,658
Filing Date: February 09, 2004
Appellant(s): ZHANG ET AL.

Sumit Bhattacharya
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 04/14/08 appealing from the Office action mailed 10/12/07.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal. An Appeal Brief was filed in this case on July 31, 2006.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct. However, both the examiner and appellant failed to recognize that dependent claim 8 currently depends on cancelled claim 7. Therefore, for purposes of this appeal, claim 8 is considered to depend from claim 5, as it was interpreted in the Final rejection.

(4) Status of Amendments

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of the Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct. However, in paragraph C, the inventor's name (Fraser) is incorrect. The correct name is "Frater."

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct. However, please note that claim 8 is considered to depend from claim 5.

(8) Evidence Relied Upon

5,153,785	Muranushi et al	10-1992
4,479,090	Frater et al	10-1984

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Rejection Under 35 U.S.C. 102

Claims 1-5, 8-11,13-15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Muranushi et al (5,153,785).

With regards to claims 1 and 3, Muranushi et al disclose apparatus to measure contact between a magnetic head and a storage medium (see figs. 7, 26-28 disclosure thereof and abstract) comprising: a current measuring device to measure current between the head and the disk (see elements 4-5 in figs. 7 and 26-28 and disclosure thereof); and a head gimbal assembly including a head to read/write information to/from the medium as claimed (See elements 2-3 and disclosure thereof).

With regards to claims 2 and 3, Muranushi et al disclose that the head is a magnetic head (see col.1 lines 9-13, element 2 and disclosure thereof).

With regards to claim 5, Muranushi et al further disclose that the magnetic disk (element 3) is coupled to a spindle (see elements 12-13 in fig.7 and disclosure thereof) and the spindle is coupled to the current measurement device (elements 4-5 in fig.7 and disclosure thereof).

With regards to claim 8, Muranushi et al disclose that the current measurement device comprises voltage source to supply power to the magnetic head (see fig.7 elements 1-5 and disclosure thereof).

With regards to claims 9-11 and 13-14, the method steps recited in claims 9-11 and 13-14 corresponds to the apparatus limitations recited in claims 1-5 and 8, respectively. Therefore, the rejection applied to apparatus claims 1-5 and 8 is also applied to method claims 9-11 and 13-14 for the same reasons of anticipation.

With regards to claims 15 and 17, Muranushi et al disclose method of determining fly height characteristics of the disk drive (see figs.7 and 26-28 disclosure thereof and abstract) comprising: coupling current measurement device (ammeter/voltage source) to a head and to a storage medium (see elements 2-6 and disclosure thereof; wherein Muranushi et al disclose capability of measuring current between the head and the medium) ; and determining that the head has too low of a flying height based on the current measurement (see figs. 7, 26-28 and col. 13 lines 32 to col. 14 line 23; wherein Muranushi et al also disclose capability of adjusting an amount of voltage applied to the head).

Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by Frater et al (4,479,090).

With regards to claim 16, Frater et al disclose a method of determining glide height characteristics for a disk drive (See abstract, figs. 1A-3 and disclosure thereof) comprising:

coupling current measurement device (elements 18- 19, A disclosure thereof and col.2 lines 53-58, wherein Frater et al also teach that the current may be measured by an ammeter) to a head gimbal assembly (see element 11-12 and disclosure thereof; wherein Frater et al disclose capability of measuring current between the head and the medium) ; and determining presence of disk asperities based on current measurement (see figs. 1A-1B, 4 disclosure thereof and col.1 lines 63-66).

Rejection Under 35 U.S.C. 103

Claims 6 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Muranushi et al in view of Frater et al.

With regards to claims 6 and 12, Muranushi et al discloses the invention as described above in this office action. However, Muranushi et al fails to further specify that the current measurement device (elements 4-5) is a current amplifier.

Frater et al discloses that the amplifier is well known and widely used as an alternate current measurement device (See col.3 lines 46-49).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to modify the apparatus disclosed by Muranushi et al with the above teachings from Frater et al in order to provide an alternate current measurement capability such as using an amplifier as taught by Frater et al., since no unexpected results would occur.

(10) Response to Argument

Appealed claims 1-5, 8-11, 13-15 and 17

Appellants argue that the cited references do not teach or suggest an apparatus comprising a current measurement device, wherein the current measurement device is an

ammeter/voltage source. Appellants further argue that the current measurement device in reference to Muranushi et al is separate and distinct from the voltage source. Therefore, the prior art fails to suggest a current measurement device that is an ammeter/voltage source.

Examiner respectfully disagrees because, although the element 4 of fig.7 in the reference to Muranushi et al is identified as a current measurement device, one of ordinary skill in the art can broadly construe it to include the voltage source to be the part of the current measurement device. Furthermore, a voltage source by itself cannot measure current and Appellants does not disclose that it could (see fig.3 elements 309 and 311 disclosed by Appellants). As disclosed by the Appellants in the paragraph [0028], the picoammeter/voltage source is amenable to measure a somewhat constant low-level current. However, as shown by the elements 309 and 311 of fig.3, the picoammeter/voltage source is not the same element of the device as Appellants argue. Therefore, based on Appellant's disclosure, which provided the interpretation of the claim language, the rejection as applied to the claims is considered proper.

Appealed claim 16

Appellants argue that the rejection of claim 16 based on Frater et al. does not include a citation of any kind or support the rejection in any way with regards to at least the limitation "wherein the current measurement device is an ammeter/voltage source." Appellants further states "indeed, this limitation is not addressed at all."

Examiner respectfully disagrees because the examiner specifically stated in the rejection applied to claim 16 that Frater et al. disclose "current measurement device (elements 18- 19 and disclosure thereof and col.2, lines 53-58, wherein Frater et al specifically teaches that the current may be measured by an ammeter)." More specifically, in col.2, line 58, Frater et al. states that

the current is measured by ammeter A. Therefore, the rejection as applied to the claims is considered proper.

Appealed claims 6 and 12

Claims 6 and 12 depend on the rejected claims 1 and 9, respectively and Appellants do not present further arguments, therefore the rejection applied to claims 6 and 12 is considered proper.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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